

Oat

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Proper selection of oat varieties requires consideration of the anticipated growing conditions, the pests that might be encountered in a specific production situation, the purpose for growing the crop and its eventual usage. Specific growing situations will dictate the priority and emphasis given to each trait included in the tables. Crown rust continues to be the prevalent disease of oat, repressing high-yielding, high-quality oat production. Adequate moisture during the 2010 growing season not only favored crop development, but also crown rust infection.

A detailed interpretation of our crown rust data follows. Because of several changes in rust races in recent years, many of the varieties currently grown are now susceptible to crown rust. In the disease data table, the crown rust rating is a combination of the quantity of pustules and their relative size. The scores range from susceptible to moderately susceptible. Five varieties, Souris, Stallion, Rockford, Badger and Beach, are less likely to suffer severe damage than the other 11 varieties in the table.

Treated seed should be used for smut-susceptible varieties, and those with BYDV (red leaf) susceptibility (score of 6.0 or higher) should be chosen carefully.

Earlier varieties may perform relatively better in more southerly parts of the state; later varieties usually have an advantage in the north. Taller varieties generally tend to produce more forage and/or straw. Lodging can be site-specific; varieties with lodging scores above 2.0 for three-year data should be chosen cautiously, especially if your soil is highly fertile. Groats percent is an

important consideration for grain production, perhaps equal to grain yield, whether the crop is intended for food or feed. It is defined as percentage of groat in proportion to the whole seed on a weight basis. Please note that Streaker is a hullless variety and no groat percentage is given.

Descriptions of oat varieties covered by the U.S. Plant Variety Protection Act include a PVP designation. When PVP is followed by the notation (94), seed of that variety may not be sold by a grower, not even to a relative or neighbor, without the express permission of the variety's developer/owner. If the PVP designation is followed by (pending), consider the variety as having PVP (94) protection.

Included this year in the oat yield table are 1-year data for all varieties grown in the trial in 2010. The data should not be considered as reliable as data you would expect from 3-year data, due to more diverse growing conditions factored in. Similarly, the oat traits table has 1-year data for maturity, height, lodging, test weight and groat percentage.

Oat traits, 2008-2010.

Variety	Days After Planting To Heading		Height (inches)		Lodging Score, 1 = Erect, 5 = Flat		Test Weight (Lb/Bu)		Groat %	
	1-Year	3-Year	1-Year	3-Year	1-Year	3-Year	1-Year	3-Year	1-Year	3-Year
Badger	58.9	59.2	30	28	2.4	2.1	39.3	40.6	72.5	71.5
Beach	66.7	65.9	39	38	1.7	1.7	42.3	43.3	73.0	72.7
Buckskin	64.3	63.7	33	33	2.9	2.3	42.1	42.7	72.2	72.0
Colt	58.8	—	31	—	3.5	—	39.7	—	71.8	—
Esker	61.6	61.3	35	32	2.1	2.0	40.1	41.0	73.6	73.1
Excel	61.3	61.2	34	32	3.1	2.7	37.6	39.2	69.5	69.0
Saber	60.9	—	33	—	2.6	—	40.2	—	74.4	—
Jerry	60.0	—	34	—	3.4	—	41.3	—	71.7	—
Kame	59.7	59.8	29	29	3.2	2.8	37.2	37.8	72.6	72.1
Morton	66.8	66.0	37	36	2.4	2.1	38.2	40.0	69.7	70.3
Rockford	67.0	66.4	38	37	1.3	1.4	42.6	43.6	73.9	73.8
Shelby 427	60.5	—	35	—	1.8	—	42.9	—	73.8	—
Souris	65.3	65.1	35	33	1.4	1.4	41.3	42.6	73.7	74.0
Spurs	61.7	—	31	—	3.0	—	40.6	—	72.4	—
Stallion	65.3	65.0	33	35	3.1	2.6	40.6	41.8	72.9	72.3
Streaker (hullless)	62.4	—	33	—	3.2	—	41.6	—	—	—
Tack	60.9	—	31	—	2.5	—	42.4	—	73.2	—
Average	62.5	63.4	34	33	2.6	2.1	40.6	41.3	72.5	72.1

General-Purpose Varieties

Many of these varieties have been tested three years or more; they usually are not grown for a specific special purpose.

Badger – Early maturity, average yield, shorter, fair lodging resistance, average test weight, average groat percentage. Yellow seed. Moderately susceptible to crown rust, resistant to smut, tolerant to red leaf. Selected at Wisconsin AES. Released in 2010. **PVP (94)**

Baker – Medium maturity, average yield, medium height, fair lodging resistance, average test weight, fair

groat percentage. Ivory-white seed. Susceptible to crown rust, resistant to smut and tolerant to red leaf. Selected at Iowa AES. Released in 2006.

Beach – Late maturity, high yield, taller, medium lodging resistance, above average test weight and groat percentage. Ivory-white seed. Some resistance to crown rust, moderately resistant to smut, susceptible to red leaf. Selected at North Dakota AES. Released in 2006. **PVP (94)**

Buckskin – Medium maturity, high yield, average height, good lodging resistance, good test weight, average groat percentage. White seed.

Susceptible to crown rust and smut, tolerant to red leaf. Released at Illinois AES in 2007. **PVP (94)**

Colt – Very early maturity, average yield, medium short, poor lodging resistance, average test weight and groat percentage. White seed. Susceptible to crown rust, resistant to smut, susceptible to red leaf. Selected at South Dakota AES. Released in 2009. **PVP (94) (pending)**

Esker – Early-medium maturity, average yield and height, fair lodging resistance, below-average test weight, better groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, some tolerance to red leaf. Selected at Wisconsin AES. Released in 2003. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

Excel – Early-medium maturity, high yield, shorter, average lodging resistance, below average test weight and groat percentage. Yellow seed. Susceptible to crown rust and smut, very good tolerance to red leaf. Selected at Purdue AES. Released in 2007. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

HiFi – Late maturity, high yield, tall, good lodging resistance, high test weight, medium groat percentage. White seed. Resistant to crown rust, moderately susceptible to smut, some tolerance to red leaf. Selected at North Dakota AES. Released in 2001. **PVP (94)**

Kame – Early maturity, below average yield, short, good lodging resistance, poor test weight, average groat percentage. Yellow seed. Susceptible to crown rust, moderately resistant to smut, susceptible to red leaf. Selected at Wisconsin AES. Released in 2004. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

Moraine – Medium maturity and yield, short, fair lodging resistance, good test weight, high groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, some tolerance to red leaf. Selected at Wisconsin AES. Released in 2001. Foundation seed available to certified seed producers only under a license/fee collection agreement. **PVP (94)**

Oat yield, (percent of mean) Minnesota off-station locations, 2010 only.

Variety	Stephen	Roseau	Winona	Madison
Badger	91	85	115	98
Beach	109	101	—	—
Buckskin	110	93	106	80
Colt	85	83	103	79
Esker	123	95	94	99
Excel	114	110	106	98
Jerry	77	91	72	79
Kame	105	97	95	97
Morton	110	97	—	—
Rockford	102	135	—	—
Shelby 427	93	96	—	—
Souris	103	124	—	—
Spurs	103	109	115	141
Stallion	115	108	90	98
Streaker (hullless)	69	79	—	—
Tack	91	97	103	131
Location mean (bu/acre)	145	120	83	61
LSD 0.05 (%)	16.4	17.2	18.8	37.3

Disease data in a single year, 2010.

Variety	Crown Rust (Buckthorn Nursery)		Smut Score ³	BYDV Score ⁴
	Amount ¹	Reaction Type ²		
Badger	20	S	R	4.0
Beach	30	MS-S	MR	4.0
Buckskin	60	S	S	3.0
Colt	50	S	R	6.5
Esker	40	S	R	4.0
Excel	30	S	S	2.0
Saber	50	S	S	3.0
Jerry	50	S	S	6.0
Kame	80	S	MR	7.0
Morton	30	S	R	5.0
Rockford	20	MS-S	R	3.0
Shelby 427	40	S	R	4.0
Souris	30	MS-S	R	4.0
Spurs	50	S	MS	4.0
Stallion	40	R-MS	MS	4.5
Streaker (hullless)	50	MS-S	R	3.0
Tack	60	S	S	1.0

¹ Relative proportion of rust spores that will achieve a successful infection.

² R = resistant, MR = moderately resistant, MS = moderately susceptible and S = susceptible.

³ Artificially inoculated, R = resistant, MR = moderately resistant, MS = moderately susceptible and S = susceptible.

⁴ Barley Yellow Dwarf Virus score from Urbana, Illinois, with 1 = no symptoms and 9 = dead.

Morton – Late maturity, below average yield, tall, average lodging resistance, below average test weight, fair groat percentage. Ivory seed. Susceptible to crown rust, resistant to smut, susceptible to red leaf. Selected at North Dakota AES. Released in 2001. **PVP (94)**

Reeves – Early maturity, fair yield, medium height, poor lodging resistance, high test weight and groat percentage. Ivory seed. Susceptible to crown rust, moderately susceptible to smut, susceptible to red leaf. Selected at South Dakota AES. Released in 2002.

Richard – Early-medium maturity, medium yield, tall, good lodging resistance, high test weight, medium groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, some tolerance to red leaf. Selected at Minnesota AES. Released in 2000. **PVP (94)**

Riser – Early maturity, lower yield, short, fair lodging resistance, high test weight and groat percentage. Yellow seed. Some resistance to crown rust and smut, susceptible to red leaf. Selected at South Dakota AES. Released in 1998.

Rockford – Late maturity, very good yield, tall, very good lodging resistance, good test weight and groat percentage. Ivory-white seed. Some resistance to crown rust, resistant to smut, tolerant to red leaf. Selected at North Dakota AES. Released in 2008. **Pending**

Sesqui – Late maturity, lower yield, average height, fair lodging resistance, fair test weight, poor groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut, good tolerance to red leaf. Selected at Minnesota AES. Released in 2001.

Souris – Medium-late maturity, medium yield, shorter, very good lodging resistance, good test weight, very good groat percentage. Ivory-white seed. Some resistance to crown rust. Resistant to smut and susceptible to red leaf. Selected at North Dakota AES. Released in 2006. **PVP (94)**

Spurs – Early-medium maturity, good yield, short with good lodging resistance, good test weight, average groat percentage. Ivory-white seed. Susceptible to crown rust, smut and red leaf. Released by Illinois AES in 2005. **PVP (94)**

Stallion – Late maturity, high yield, tall with poor lodging resistance, good test weight, average groat percentage. White seed. Some resistance to crown rust, susceptible to smut and red leaf. Released by South Dakota AES in 2006. **PVP (94)**

Wabasha – Medium maturity and height; lower yield, fair lodging resistance and test weight, high groat percentage. White seed. Susceptible to crown rust, resistant to smut and tolerant to red leaf. Selected at Minnesota AES. Released in 2001.

Winona – Early, low yield, short, average lodging resistance, average test weight, good groat percentage. Yellow seed. Susceptible to crown rust, resistant to smut and red leaf. Selected at Minnesota AES. Released in 2005.

Special-Purpose Variety

This variety has also been tested three years or more, and has special attributes that differentiate it from general-purpose varieties or is intended for a specific end use.

Buff – Hulless. Medium maturity, good yield for hulless variety. Medium height, good lodging resistance, very high test weight. Susceptible to crown rust, resistant to smut, susceptible to red leaf. Selected at S.D. AES. Released in 2002.

Test Plot Research

Test plot establishment and management were supervised by Tom Hoverstad, George Nelson, Steve Quiring and John Weirsma.

Oat	
Planting Rate and Date	
Bushel Weight, Pounds.....	32
Seeds/Pound.....	16,200
Planting Rate, Pounds/Acre.....	80
Planting Rate, Seeds/Sq. Ft.....	28
Planting Date.....	Early Spring

Oat yield, percent of mean, by location, 2008-10.

Variety	Rosemount		Waseca		Lamberton		Morris		Crookston		Average of 5 Locations	
	1-Year	3-Year	1-Year	3-Year	1-Year	3-Year	1-Year	3-Year ¹	1-Year	3-Year	1-Year	3-Year
Badger	76	92	91	93	96	97	88	80	103	96	92	93
Beach	78	93	102	100	107	103	95	109	92	97	96	100
Buckskin	59	88	108	92	99	99	94	100	97	98	93	96
Colt	60	—	96	—	89	—	93	—	89	—	87	—
Esker	99	103	89	92	99	101	98	90	90	92	95	96
Excel	65	93	97	92	97	98	100	94	103	102	94	96
Saber	102	—	93	—	97	—	98	—	89	—	96	—
Jerry	72	—	75	—	91	—	81	—	74	—	79	—
Kame	62	79	93	81	104	98	99	89	95	86	92	87
Morton	42	67	94	88	89	88	83	100	92	93	82	87
Rockford	125	117	126	121	108	103	114	117	114	111	117	113
Shelby 427	108	—	74	—	97	—	104	—	93	—	95	—
Souris	115	111	115	111	113	103	100	90	101	105	109	105
Spurs	103	—	90	—	104	—	82	—	88	—	93	—
Stallion	106	110	96	98	92	97	106	103	110	101	101	101
Streaker (hulless)	60	—	68	—	68	—	74	—	75	—	69	—
Tack	62	—	78	—	90	—	90	—	88	—	83	—
Location Mean (bu/acre)	93	90	125	104	139	136	121	113	115	119	119	112
LSD 0.05 (% of mean)	14.3	7.9	18.4	8.7	25.6	10.5	16.0	12.9	20.6	8.1	9.0	4.3

¹ 2009 and 2010 data only.